Fig.4

ABCD Corporation
Tokyo Branch

A B C D
E F G H

ORIGINAL DOCUMENT

REGION
EXTRACTION

ABCD Corporation
Tokyo Branch

CHARACTER
REGIONS

A B C D
E F G H

PICTURE REGION

Fig.7

```
      ┌─────────────────────────────┐
      │   CALCULATION OF FONT SIZE   │
      │ WITHOUT MAGNIFICATION CHANGE │
      └─────────────────────────────┘
                     │
                     ▼
S701    ┌──────────────────────────────┐
        │  CALCULATE MAXIMUM LINE WIDTH │
        └──────────────────────────────┘
                     │
                     ▼
                  ╱──────────╲
        ╱─ MAXIMUM LINE WIDTH ─╲        NO
S702   ◇  < WIDTH OF CIRCUMSCRIBING  ◇ ─────┐
        ╲──   RECTANGLE ?   ──╱              │
                  ╲──────────╱               ▼
                     │ YES          S703  ┌─────────────────────┐
                     │                    │ CHANGE THE FONT SIZE │
                     ▼                    │   TO A SMALLER SIZE  │
              ┌──────────┐                └─────────────────────┘
              │  RETURN  │
              └──────────┘
```

Fig.8

ORIGINAL IMAGE
(10 points)

```
┌──────────────────┐
│ ABCD Corporation │
│ Tokyo Branch     │
└──────────────────┘
   ◄── 28.2[mm] ──►
```

OCR FONT SIZE
(12 points)

```
┌────────────────────┐
│ ABCD Corporation   │
│ Tokyo Branch       │
└────────────────────┘
   ◄──  33.6[mm]  ──►
```

OCR FONT SIZE
AFTER CORRECTION
(10 points)

```
┌──────────────────┐
│ ABCD Corporation │
│ Tokyo Branch     │
└──────────────────┘
   ◄── 28.0[mm] ──►
```
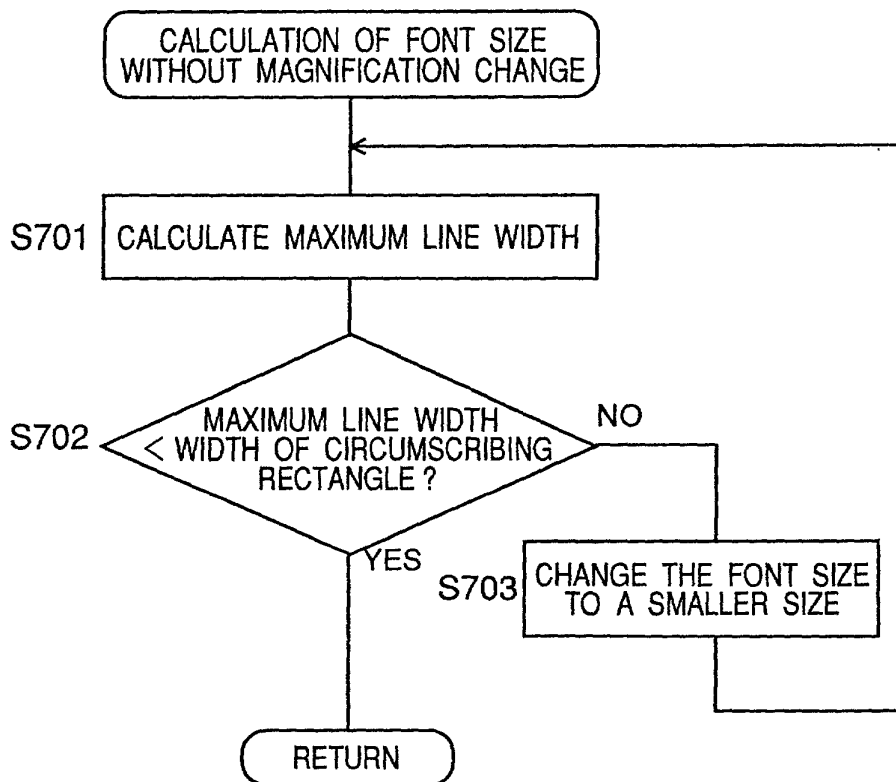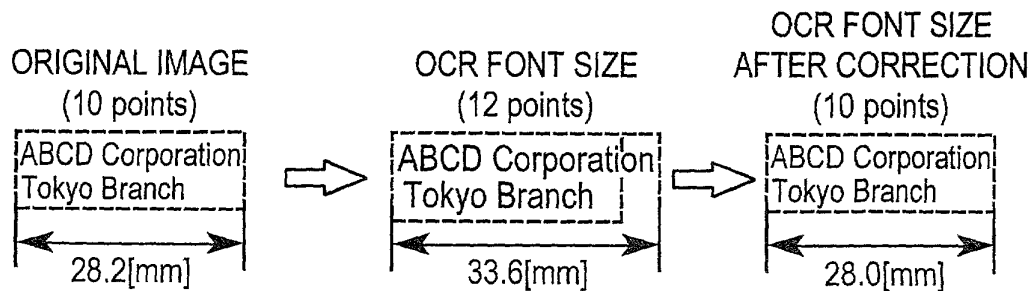
Fig. 15A

DESCRIPTION
1. Name of inventors(s)
Yukihiko Ichikawa

2. Title of the invention/ utility model
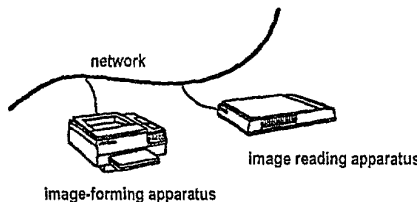OCR digital copying machine (setting the number of output sheets, re-layout and 3-in-1)

3. Points of invention
Characters in a document are recognized with OCR function and are changed to character codes. By paring layout of the encoded data, they are outputted in a layout easy to be read in a processing for decreasing the number of output sheets, such as N-in-1 mode for copy papers.

4. Objects of the invention or background to the invention
In a prior art copying machine or MFP, 2(N)-in-1 mode is provided in order to copy 2(N) documents in a paper sheet by reducing the documents. However, in the N-in-1 mode, margins are provided as shown in Fig. ?. Therefore, it is needed to over-reduce the documents. Further, because the reduced documents are arranged in parallel in the layout of the copy paper, it is needed to give attention to the order of the pages and it is troublesome for reading.
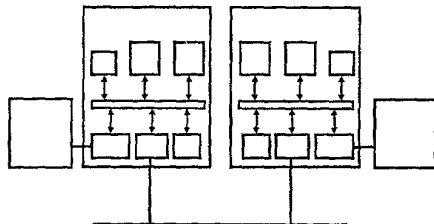
5. Patent documents and the like on prior art
Patent document number
Summary of the technology and the differences

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6. Embodiments of the invention

[Embodiment 1]
Fig. 1 shows a structure of Embodiment 1 of the invention.

network

image reading apparatus

image-forming apparatus

The embodiment has an image-forming apparatus and an image reading apparatus connected in a network as shown in Fig. 1. Fig. 2 is a block diagram of the embodiment.

DESCRIPTION
1. Name of inventors(s)
Yukihiko Ichikawa
2. Title of the invention/ utility model
OCR digital copying machine (setting the number of output sheets, re-layout and 3-in-1)
3. Points of invention
Characters in a document are recognized with OCR function and are changed to character codes. By paring layout of the encoded data, they are outputted in a layout easy to be read in a processing for decreasing the number of output sheets, such as N-in-1 mode for copy papers.
4. Objects of the invention or background to the invention
In a prior art copying machine or MFP, 2(N)-in-1 mode is provided in order to copy 2(N) documents in a paper sheet by reducing the documents. However, in the N-in-1 mode, margins are provided as shown in Fig. ?. Therefore, it is needed to over-reduce the documents. Further, because the reduced documents are arranged in parallel in the layer of the copy paper, it is needed to give attention to the order of the pages and it is troublesome for reading.
5. Patent documents and the like on prior art
Patent document number
Summary of the technology and the differences
6. Embodiments of the invention

[Embodiment 1]
Fig 1 shows a structure of Embodiment 1 of the invention.

The embodiment has an image-forming apparatus and an image reading apparatus connected in a network as shown in Fig. 1
Fig. 2 is a block diagram of the embodiment.

Fig. 15B

PRIOR ART

MARGIN

MARGIN

MARGIN

DESCRIPTION
1. Name of inventors[s]
Yukihiko Ichikawa

2. Title of the invention/ utility model
OCR digital copying machine (setting the number of output sheets, re-layout and 3-in-1)

3. Points of invention
Characters in a document are recognized with OCR function and are changed to character codes. By paring layout of the encoded data, they are outputted in a layout easy to be read in a processing for decreasing the number of output sheets, such as N-in-1 mode for copy papers.

4. Objects of the invention or background to the invention
In a prior art copying machine or MFP, 2(N)-in-1 mode is provided in order to copy 2(N) documents in a paper sheet by reducing the documents. However, in the N-in-1 mode, margins are provided as shown in Fig 2. Therefore, it is needed to over-reduce the documents. Further, because the reduced documents are arranged in parallel in the layer of the copy paper, it is needed to give attention to the order of the pages and it is troublesome for reading.

5. Patent documents and the like on prior art
Patent document number
Summary of the technology and the differences

1

6. Embodiments of the invention

[Embodiment 1]
Fig. 1 shows a structure of Embodiment 1 of the invention.

The embodiment has an image-forming apparatus and an image reading apparatus connected in a network as shown in Fig 1.
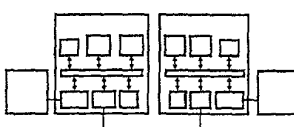Fig. 2 is a block diagram of the embodiment.

2